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On the "ABBREVIATED INJURY SCALE" and "INJURY SEVERITY SCORE"

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A Number of Reflexions Inspired by the Paper by J. STATES to the XVIIIth A.A.A.M. Conference.

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ABSTRACT.-

The A.I.S. is an excellent tool for evaluating injuries.

The correction made, together with the idea of the I.S.S., also represent further improvements.

The needs that arise out of automobile safety research reveal that the existing rating system for injuries and their secondary effects is sometimes inappropriate to the concrete problems that occur.

A number of suggestions are made.

Injury Severity Scales have been created to meet a wide range of requirements, and the proliferation of the ratings reflects this diversity. The problem is to discover:

- Wether the most useful ratings (A.I.S. and Overall A.I.S.) meet requirements, or wether they should be supplemented or transformed, in view of the disadvantages that modifications would inevitably generate;

- wether more sophisticated classifications could be compatible with what already exists.
  Ex.: the 3-points seat belt involves the clavicle. Should a clavicle injury come under the "thorax" body region injuries and not that of "limbs".

1 - REQUIREMENTS -

1.1. Ratings must allow for:

- the seriousness of an injury from the standpoint of:
  . survival
  . length of treatment
  . sequels
- the social cost
- how the injury was induced.

These subject-headings correspond approximately to the subdivisions of the C.I.S.

1.2. The ratings must apply alternatively to:

- the most highly detailed parts of the body,
- the body as a whole,
- regions of the body combining a number of the above elements and forming specific units as regards the accident risks involved and the means of protection they concern.
  Ex.: a research worker concerned with pedestrian-vehicle accidents needs a severity scale for the "lower limbs" region of the body, and not the "lower + upper limbs" region.

2 - CRITIQUE OF THE PRESENT CLASSIFICATIONS -

2.1. Critique of the Injury Scale Dictionary.

A - Some of the A.I.S. severity codes are dubious.
  Ex.: closed fracture of the femoral shaft: 2
  closed fracture of the nose or fibula: 2
  Clearly, the first fracture is rated too low

B - The list is not long enough. Detailed analysis is needed in order to study specific problems.
Ex.: rib cage injuries.
The severity code only considers:
- closed rib fracture without respiratory embarassment,
- closed sternal fracture,
- flail chest.
This is not enough for detailed study of the injuries caused by the restraining webbing.

The proliferation of the basic injuries is no disadvantage, since it will not raise any problems of compatibility with the present classification.

Annex 1 gives proposals for the chest wall, showing how detailed analysis of the injuries will make it possible to meet a requirement while still following the A.I.S.

2.2. Regroupings into regions of the body.

A - Number of such regions.
This would appear inadequate. By associating adjacent regions factors of information that are by no means negligible are lost.
Ex.: separate consideration of head and neck injuries would make it possible to study the influence of the helmet on the A.I.S. in these two regions, which is impossible if the two are grouped together.
The same comment also applies to the limbs (the advantage of distinguishing between the "upper" and "lower" limbs).

B - Contents of the regions.
Certain of the choices as to "boundary" zones are dubious.
Ex.: the clavicle should come under the "thorax" region of the body, especially for studying means of restraint. One does not necessarily have to follow strictly the "classical" anatomical classifications.

2.3. Calculation of overall body injury scores (I.S.S. and Overall A.I.S.

A - To envisage a code for each region equating to the code of the severest injury seriously underrates the risk of association within the same region.
Ex.: a superficial wound of the liver associated to a wound of the spleen and a perforation of the duedonum would give a severity code of 4. The mortality rate for such an association is over 50 % whereas that for rupture of the spleen alone is about 5 % with the same code.

B - The I.S.S. also loads to overall codes that do not fit the actual facts.
Ex.: a victim with two serious injuries, an to the cranium, the other to the cervical spine, would have an A.I.S. code of 5, i.e. an I.S.S. of 25.
A different victim suffering from an open fracture of the nose (A.I.S. 3), sacro-iliac fracture (A.I.S. 3) and open fracture of the fibula (A.I.S. 3) has an I.S.S. code of 27, yet he seems less endangered than the preceding victim.

3 - FOLLOW-UP ADVOCATED -

It hence appears necessary (see Table 1) to envisage:

. An in-depth analytical classification of injuries so that maximum data can be collected in the initial stage of surveys The basis of such a classification should be the A.I.S. together with:
- a critical review of the present codes;
- finer analysis of certain injuries.
Ex.: -rib injuries
-fracture of the base of the cranium
-cerebral concussion, etc...

. Regroupings more appropriate to objectives that sometimes vary.
The overall severity of injuries could be appraised still better were the I.S.S. to be improved by:
- breakdown into a greater number of regions of the body;
- allowance for associated injuries within a common region of the body.

table I_ SCHEMATIC REPRESENTATION OF INJURY SCALES